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1980 ANNUAL REPORT



DIVISION of MARINE FISHERIES

Philip G. Coates, Director

July 1, 1979 to June 30, 1980

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Approved by John Manton, State Purchasing Agent

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REPORT OF THE DIRECTOR

Philip G. Coates was appointed Director of the Division of Marine Fisheries, by Commissioner Steve Chmura and confirmed by the Marine Fisheries Advisory Commission, effective July 1, 1979, replacing Allen E. Peterson who resigned to become Northeast Regional Director of the National Marine Fisheries Service. Since 1971, Coates has served as Assistant Director of Commercial Fisheries.

James J. Fair was appointed Assistant Director of Commercial Fisheries on November 13, 1979. Prior to his appointment, Jim had served as Lobster Research Biologist and had supervised the early coho salmon development program.

Fishery management under the Fisheries Conservation and Management Act, continued to focus primarily on groundfish and sea herring. A new direction in groundfish management, designed to minimize the complex regulatory structure and maximize the quality of information collected from fishermen was proposed by Council member, Spencer Appollonio, in September of 1979. New England Fishery Management Council efforts were directed at formulating the so-called "Interim Groundfish Management Plan" during the remainder of the fiscal year.

At the state level, two Division programs were successfully concluded - the Canal Power Plant project and the Salem Power Plant project. The agency wrestled with personnel adjustments, and an imprecise bumping procedure. Personnel problems were further complicated by the development of a civil service examination for the three biologist titles. The exam was finally held in May of 1980, after entry requirements and promotional examination eligibility were negotiated with the Department of Personnel Administration.

Aided by funding from a Coastal Zone Management grant, the Division initiated work on a first ever comprehensive Massachusetts fisheries management policy. This effort was guided by an Executive Order to the Marine Fisheries Advisory Commission. Division staff initiated a series of public meetings in order to gather public input on various fisheries issues.

The coastal lobster license entry issue with its attendant problems was addressed by the Massachusetts Legislature towards the end of FY-80 in hopes that a more liberal and simpler licensing system should result.

At the end of the fiscal year, through the support of key legislators and Governor King, a capital outlay appropriation passed for the extensive remodification or reconstruction of the Shellfish Plant in Newburyport.

On the negative side, however, continued efforts to resolve the lack of adequate laboratory and office facilities on the South Shore met with little progress. The original 1976 capital outlay, designed to fund the cost of a new South Shore facility, continued to shrink under the burden of inflation.

GENERAL COUNSEL

Adjudicatory Proceedings

In Re: Hallsen, et al. Three adjudicatory proceedings were conducted investigating the shellfish harvesting activities of master diggers Hallsen, Malick and Foster. Evidence submitted by Natural Resource Officers and City officials from Quincy showed that a consistent pattern over an extended period of time had established an intentional, willful and deliberate failure of these master diggers to deliver all contaminated shellfish harvested in Quincy to the shellfish depuration plant in Newburyport. The memorandum of final decision in these three proceedings found each master digger to be in violation of M.G.L. c. 130, s. 75 and 322 CMR 7.02. The Director accepted the recommendation contained in the memorandum of final decision, and each master digger was fined five hundred dollars, the maximum bonding requirement. Subsequent to this, each master digger filed an appeal for judicial review of this agency action in Superior Court, only to withdraw their appeals shortly thereafter.

Litigation

White Dove, Inc. v. Peterson. This case was filed in Federal District Court for the District of Massachusetts, and alleged federal preemption of the state bluefin tuna regulations by federal statute. The administrative record was compiled, extensive depositions and interrogatories were conducted by both parties, briefs and counter briefs were filed and oral argument was made before Judge Garrity. The Judge denied the plaintiff's request for a temporary restraining order against the Enforcement of the state bluefin tuna regulations, and certified under its enabling statute, M.G.L. c. 130, s. 17A. The State Supreme Judicial Court is expected to hear argument on the issue in two months.

Chadwick v. Peterson. Suit in Massachusetts Superior Court seeking a declaratory judgement on the issue of arbitrary and capricious agency review and denial of plaintiff's hardship lobster license application. This case was dismissed by the Court pursuant to a stipulation of the parties.

Regulations

Northern shrimp fishery. Regulations were promulgated implementing the recommended regulatory measures of the Atlantic States Marine Fisheries Commission. The regulations defined "vessels registered under the laws of the State" to mean Massachusetts fishing vessels operating under authority of a commercial fisherman permit. The regulations were made applicable to these vessels when fishing for shrimp in the FCZ.

Atlantic sea herring. Regulations established a northern and a southern Massachusetts management area corresponding to federal herring management areas in the FCZ. State closures in the appropriate areas would follow federal closures in the FCZ, either on an emergency basis or after hearing and public comment.

Mobile fishing gear in Nantucket Sound. Regulations revised the management area in the waters of Nantucket Sound, and prohibited the use of otter, beam and pair trawls within the area from May 1 to October 31 of any fishing year.

Legislation

The Division did not file any bills for the 1980 legislative session. Legislative strategy was to focus agency support on a single priority bill to amend state licensing of the coastal commercial lobster fishery. Three lobster licensing bills were filed. A redraft version of the three bills was accomplished and after numerous Committee hearings and meetings, Chapter 444 of the Acts of 1980 was adopted by the Legislature and signed by the Governor. Thirty-seven other bills covering numerous marine fisheries matters were filed for the 1980 legislative session. Natural Resource Committee hearings were held on all bills. The Division drafted and submitted written testimony for repeat bills, and submitted oral testimony on all new bills. These bills did not result in any other new legislation being adopted by the General Court.

Legal Opinions

Conflict of interest. Legal opinion concluded that a member of the Marine Fisheries Advisory Commission who is intimately involved and familiar with the lobster fishery and its individual participants, through business, personal and/or social contacts, gives a reasonable basis for the impression that the Commission member could be improperly influenced in voting on hardship applications for lobster licenses. The opinion recommended that Commission members so situated disqualify themselves from voting on hardship applications.

Appointing authority for personnel of the Division. Legal opinion concluded that the Director of the Division of Marine Fisheries had the authority in the first instance to appoint personnel to the various positions within the Division, subject to final approval of that appointment by the Commissioner of the Department of Fisheries, Wildlife and Recreational Vehicles.

Development of fishery management plans. Legal opinion concluded that the Magnuson Fishery Conservation and Management Act of 1976 does not require a coastal state to promulgate regulations that are consistent, comparable or equivalent to federal regulations implementing a fishery management plan. Failure of a coastal state to promulgate any regulations, in and of itself, would not constitute grounds for federal pre-emption.

Projects

Adjudicatory proceedings. Established agency guidelines for establishing, conducting and concluding adjudicatory proceedings before the Division. Guidelines included forms for use by the Division of Law Enforcement for requesting an adjudicatory proceeding, notice and due process requirements for respondents, adequacy of the record and sufficiency of the memorandum of final decision.

Mandatory purchasing of Massachusetts seafood. A task force was established composed of individuals with an expertise in seafood marketing, economics, and law to investigate the feasibility of requiring mandatory Massachusetts seafood purchasing by state institutions. After extensive meetings and discussions with seafood processors, State and Federal officials and other experts in the field, the task force concluded that anything more than a non-binding Executive Order encouraging state institutions to purchase Massachusetts seafood was not possible due to (1) legal constraints as found in statutes applicable to state purchasing, bidding and small business requirements; (2) difficulty in identifying the final product as fish harvested by Massachusetts vessels; and (3) competitive pricing restrictions.

Marine fishery law manual. An intern was appointed to begin research and compilation of 50 Code of Federal Regulations, Chapter 130, all Special Acts of the Massachusetts Legislature not codified in Chapter 130, 322 Code of Massachusetts Regulations, and local city and town shellfish regulations. Subsequent to the initial compilation and editing, it was decided that the manual, which was originally intended to include federal, state and local fishery regulations, would include only state statutes and Division regulations. A compilation of all the laws governing fishing activities was postponed until a later time.

Recodification. Initial efforts to begin the task of recodifying Chapter 130 and the Special Acts of the Massachusetts Legislature involved securing a legal intern willing to do the laborious research and compilation that was required. Three interns began research efforts, with only one accepting the internship for a single school semester. As a result, initial recodification progress for 1980 was minimal.

National Association of Marine Resource Attorneys. Initial efforts were undertaken to organize a National Association of Marine Resource Attorneys for purposes of generating and circulating relevant information on the legal ramifications of marine resource management decisions at the state level. Through the auspices of this Association states could share information and legal assistance on marine resource management issues.

COUNCIL LIAISON

Various Division position papers and informational briefs were prepared for the administration. Much of the content focused on the U.S./Canadian Treaty and related matters; e.g., the Treaty's acceptability, updates on its status and amendments, and Canadian perspectives.

Division commentary was written on several NMFS proposed actions; e.g., amendments to guidelines for development of Fishery Management Plans and the point system for enforcement of fisheries regulations. Comments were also provided on Council proposed actions; e.g., amendments to the Surf Clam/Ocean Quahog Management Plan, implementation of the Mackerel Plan, and a policy statement on enforceability of Plan regulations.

Major efforts were made on herring management at both the Council and State levels. The Liaison served as Chairman of a Council Sea Herring Committee Working Group which addressed several important management issues; i.e., Herring Plan flexibility and juvenile harvest off the Massachusetts coast. Liaison between the Division and Washington NMFS on State waters sea herring management was maintained. Assistance was provided in the development of Massachusetts territorial waters sea herring regulations, and efforts to monitor the State's herring fishery were initiated.

Issues pertaining to groundfish management, as in previous years, demanded much attention. Considerable time was devoted to the development of the Council's Interim Groundfish Plan. A document dealing with the concept of mesh selectivity and results of recent mesh selectivity trials and their application for management of the groundfish fishery, was written for the Council's consideration. All matters relating to cooperative Massachusetts/Rhode Island management of yellowtail flounder were handled. This involved correspondence between both States and the Federal government on proposed State actions, and preparation of background information for and summaries of public hearings.

A proposal for a Division Sea Sampling Program was written. The Program's objectives are to investigate the nature of Massachusetts inshore fisheries, enhance the federal sea sampling base, and potentially to increase fishermen's confidence in assessments and specific management measures (e.g., mesh size limitations) by acquiring data during actual fishing operations.

Assistance was provided in preparing the text for a State/Federal Statistical Technical Committee Outline which represented a compendium of Massachusetts statistical capabilities, responsibilities, and problems. The outline was to facilitate efforts involving a regional approach for collection and management of fishery statistical data.

Other activities included review of in-house work, critiques of project proposals, involvement in the Groundfish Management Task Force, scup ageing workshop, and attendance of Council and Committee meetings.

BUREAU OF ADMINISTRATION AND OPERATIONS

The Fiscal 1980 Division appropriation of \$1,674,150 was administered under six accounts: Administration and Operations (\$480,000), Research (\$404,650), Sport Fisheries (\$100,000), Commercial Fisheries (\$162,000), Shellfish Purification Plant (\$102,500) and Reimbursement to Cities and Towns (\$425,000).

The Division received \$214,176 in federal reimbursements under the Commercial Fisheries Research and Development Act and the Anadromous Fisheries Restoration Act. An additional \$167,260 was received in federal grants, and \$104,422 in non-federal trusts.

CAT COVE MARINE LABORATORY

Cooperative Studies

The laboratory engaged in a cooperative interlaboratory study of PCB's in lobsters with the Federal F.D.A., State F.D.A. and DEQE. Results of this study were made available at the WHOI meeting on PCB's.

In-House Studies

1. The depuration of PSP toxins by the sea clam. This study has been completed and is being prepared for publication.
2. A survey of sediment samples of North Shore for the presence of *G. tamarensis* cysts (in cooperation with D. Anderson, WHOI). A Salem State intern, Kristine Fitch, at the laboratory also contributed to this study. Results will be published at the WHOI.
3. The effect of detergents on the analyses of PSP toxins.
4. The rearing and maintenance of striped bass to study holding parameters at the Cat Cove Marine Laboratory. A large number of these were eventually transferred to the New England Aquarium; some remain in the pool.
5. The routine maintenance of *G. tamarensis* cultures. Samples were provided to universities and other institutions at their request.
6. The routine analysis of heavy metals, pesticides and PCB's. These latter analyses of samples from the New Bedford area constituted the major workload of the laboratory.
7. The routine analysis of pool seawater.

Assistance to Other Laboratories

1. This laboratory provided extensive assistance to the Lawrence Experiment Station (DEQE) in the analysis of PCB samples during a period when they had experienced equipment failure and were lacking their gas chromatograph operator due to illness.
2. Samples were analyzed for PCB's, pesticides and heavy metals for the Division of Fish and Wildlife.
3. Personnel provided laboratory assistance to the Shellfish Plant.

Personnel

Robert Serabian, laboratory technician, transferred to DEQE as Junior Chemist.

Timothy Cunningham was hired as laboratory technician and underwent extensive training for his position.

William Hebert, a YACC employee, was given laboratory training during this period. He is returning to U. Mass. this Fall.

John Miller, a student intern from U. Mass., using methodology developed by the laboratory, studied pumping rates of shellfish.

Maintenance

Equipment. Air conditioning units, incubators, air compressors and seawater systems required repair and overhaul. A temperature controlled sampler and automatic printing accessories were received and installed on the Cary 219 spectrophotometer.

Building and Grounds. Office areas were painted. Part of the parking lot was refinished.

Miscellaneous.

1. Exhibits (Essex Agricultural School), Career Days, and laboratory tours were conducted.
2. The McKee craft was loaned to the DEQE Shellfish Sanitation Program.
3. Many meetings were held with Salem State College to develop cooperative activities utilizing the laboratory and Salem State College facilities.

BUREAU OF RESEARCH

FISHERY RESOURCE ASSESSMENT

The fourth (Sept. cruise #924) and fifth (May cruise #925) bottom trawl surveys of Massachusetts coastal water were completed in FY 1980. The purpose was to monitor inshore distribution and relative seasonal abundance of Gulf of Maine and Middle Atlantic Bight fish stocks and improve the scientific basis for state marine fisheries management. The consistent use of the 55' F/V FRANCES ELIZABETH and method of station selection, standardized trawl gear and fishing method, and complete weight and length records for all captured fish, has resulted in a consistent data base which is most important for measuring and predicting changes in fish stock abundance. A summary of cruise efforts and collection follows:

| | <u>Cruise #924</u> | <u>Cruise #925</u> |
|-------------------------------|--------------------|--------------------|
| Vessel hours | 187.5 | 194.5 |
| Sampling days | 18 | 17 |
| Stations completed | 99 | 98 |
| Stations aborted | 11 | 9 |
| Net repair man-hours at sea | 15 | 24 |
| DMF participants | 21 | 21 |
| Scientific man-hours at sea | 564 | 578 |
| Total catch weight (kg) | 15,322.8 | * |
| Total catch number | 196,877 | * |
| Age growth & maturity samples | 491 | 970 |
| Age and growth samples | 313 | 345 |
| Food habit specimens | 446 | 134 |
| Pathobiological observations | 2,285 | 1,169 |
| Special samples | 1,927 | 868 |

*Data not yet summarized

The continuing efforts to computerize basic survey data and improve production program output has facilitated summarization and report presentation of seasonal abundance indices for 29 of Massachusetts' most prominent marine species. Mr. Estrella also wrote software for assessing winter flounder spawning success from beach seining data for young-of-the-year flounder acquired during the sixth consecutive three-week June survey (61 stations; 183 tows).

COD AGING

The Cod Aging Project continued to be funded by the NMFS in FY 1980 and supervised by the Resource Assessment Project. During FY 1980, a total of 5,355 cod otoliths were aged from the federal and state research vessel cruises, and 1977-79 commercial samples. Ms. Jimenez also participated in State-Federal ageing workshops on sea scallops and summer flounder.

As a member of the A.S.M.F.C. Summer Flounder Scientific & Statistical Committee, the project leader continued to take part in efforts to draft a fisheries management plan for this species. He also prepared a proposal for MCZM funding on a biological monitoring study of potential Cape Cod Bay dredge spoil dump sites.

Publications and Presentations

Howe, A. B., D. B. MacIsaac, B. T. Estrella and F. J. Germano, Jr.
1979. Coastwide Fishery Resource assessment, Federal-aid Annual Report.

_____. 1979. Massachusetts Division of Marine Fisheries Fishing Power Trials. Mimeo.

_____. 1980. "The First Massachusetts Inshore Trawl Survey." Presentation by Bruce T. Estrella to the Northeast Fish & Wildlife Conference, Ellenville, N.Y. on April 29, 1980.

_____, B. T. Estrella, F. J. Germano, Jr., and James Buckley.
1980. "Massachusetts Bottom Trawl Survey 1980." Mass. Div. Marine Fisheries News Report in Maine Commercial Fisheries, Vol. 7.

NORTH SHORE AREA TEAM

The North Shore area team has been involved with a wide array of activities during FY 1980. Much of the work accomplished was in providing assistance to other projects or collecting data for the administrative staff.

Annual overflights were conducted in the fall prior to the issuance of Pair trawling permits. The flights served as a basis for mapping fixed gear deployment in coastal waters. This information was used to delineate those areas in which pair trawling would be permitted and substantially lessens the probability of gear conflict between fixed gear and the herring pair trawl fisheries.

An intensive sea herring sampling program was conducted during the winter and spring fishery. Samples were taken almost daily from each area fished and were examined for age composition, size composition and weight. The prime reason for collecting this information was to determine the amount of juvenile herring caught in territorial waters and landed in Massachusetts ports. All data collected was forwarded to NMFS and the Division's Council liaison to be used as a basis for future herring management decisions.

Project personnel conducted a port sampling program and monitored the development and subsequent decline in the sea scallop fishery conducted out of the northern Massachusetts ports.

Data collected served as the basis for an emergency regulation promulgated by the Director which provided for the protection of the sea scallop beds.

A pound survey was initiated and is continuing in an effort to obtain catch composition data relative to the commercial lobster fishery. Information is being collected on size distribution of the catch, sex ratios and degree of sexual maturity of females, method and location of capture.

During FY80 a total of 130,000 lobster fry were stocked out in the North Shore area. These releases were evaluated for immediate losses due to predation. Predation losses appeared to be minimal when a bottom release technique was employed.

Project personnel assisted in the development and implementation of a shellfish management plan for the Carson Beach area of Boston. Assistance was also provided to the municipalities of Hull, Hingham, Quincy, Gloucester, Ipswich, Newburyport and Salisbury. The bulk of assistance provided related to the developing of shellfish management plans.

A major shellfish survey was initiated in the Merrimack River estuary to determine soft shell clam densities. This work is being conducted in anticipation of a possible reclassification of 350 acres of grossly contaminated shellfish flats. Population estimates will be used to assist Newburyport and Salisbury in drafting management plans for the utilization of their soft shell clam resources.

All north shore fishways were cleaned and some repair work completed prior to the spring alewife runs.

Smelt runs were monitored again this year with good egg deposition noted in the major spawning areas. The winter smelt fishery was greatly improved this year when compared to the previous year. Excellent sport catches were noted in most areas despite the very sporadic nature of this fishery.

Smelt eggs were again placed in Bull Brook, Ipswich as part of the continuing effort to reestablish historical smelt runs. Egg trays produced a good hatch and the usual vandalism problems did not materialize this spring.

The development of a shad sport fishery in the Merrimack River was closely monitored this spring in conjunction with the Division's involvement with the Merrimack River Anadromous Fisheries Restoration Program. A sport catch estimated to be 2,500 fish indicates that the nucleus of a substantial shad run is developing. Construction of the Essex Hydroelectric facility is about half completed and the new fish elevator should be operation for the spring run of 1982.

In a cooperative effort with other members of the Merrimack River Policy and Technical Committees, the strategic plan for Atlantic salmon restoration was completed and distributed. The operation plan is nearing completion and should be available in August of 1980. These plans address the methodology, time tables and problems associated with restoring Atlantic salmon to their historic levels of abundance in the Merrimack watershed. A similar plan is being developed for shad.

Two adult Atlantic salmon returns to the Merrimack were documented this year by project personnel.

Project personnel completed and submitted for publication a paper entitled "Incidence of PEN (piscine erythrocytic necrosis) and *Glugea hertwigi* (Weissenberg) in rainbow smelt." The manuscript is currently being reviewed for publication in Estuaries and is abstracted as follows:

Smelt (*Osmerus mordax*) from six rivers along the coast of Massachusetts were examined for the microsporidian *Glugea hertwigi* and piscine erythrocytic necrosis (PEN), a viral blood disease. Of the 485 smelt sampled, 13.4% were affected by *Glugea*. Incidence ranged from 18.0% in the Town River to 0% in the Parker River. PEN was observed in all river systems. Incidence ranged from 61% in the Parker River to 97% in the Jones River. Individual intensity of infection was low, with the majority of fish having less than 1% of their erythrocytes affected. The highest intensity for an individual specimen was 4.68%.

Assistance was provided to the Resource Assessment project in both the spring and fall surveys.

The Plymouth Power Plant Project was assisted in their Jones River smelt study. The area team aged 600+ smelt by scale reading techniques and examined in excess of 100 fish for *Glugea* infestation. This data will be utilized in population dynamics studies of the Jones River smelt run.

CAPE AND ISLANDS AREA TEAM

Increased pressure on coastal waters and marine resources was again evident in two conflicts in Nantucket Sound. In late April, a fleet of draggers commenced fishing concentrated squid just off the Falmouth-Mashpee shore. Project personnel monitored the effort of over 25 vessels, that hailed from ports as far away as Gloucester and Point Judith, Rhode Island.

Meetings with private individuals, sportfishermen and other commercial fishermen suggest continued conflict related to the establishment of two fish weirs off the coast of Hyannis-Cotuit, an area that normally has heavy fishing pressure from sportfishermen, party boats, and commercial sportfishermen. The latter view the re-establishment of fish weirs in this area as a hindrance to navigation and a fishing technique that will adversely effect the future of certain fish stocks. The catch and activity of the weir fishermen is being closely monitored so that the significance of this activity to the target species may be determined.

Two years ago the Town of Yarmouth established a tire reef in Nantucket Sound. Tires are still being placed on this reef. Project personnel are surveying the reef for the stability of the tire units, marine invertebrate and vertebrate colonization, and fishing pressure by sportfishermen. The reef appears to contribute to the fishery, but the important question on the stability of the reef will take several more years to answer.

Over 60 requests for technical assistance on shellfish and related matters were answered. One request resulted in a one year study. The presence of large seed bay scallops in Pleasant Bay and Nantucket Harbor during the winter harvest season prompted petitions to harvest them. These petitions were refused and a comprehensive survey of survival and fecundity of these scallops commenced. This work will continue through to fall.

SOUTH SHORE AREA TEAM

A study was undertaken to determine the feasibility of a pot fishery for scup in Buzzard's Bay. Two pot designs and three types of bait were evaluated at 27 locations. Fishing techniques were developed. Although we were successful at catching scup, it was determined that improvement in pot design was necessary before this fishery could become commercially feasible in Buzzards Bay.

Over 200 lobster, finfish, and shellfish samples comprising 15 species were taken from 48 sites in Buzzards Bay for PCB analysis. Results of the analysis indicated that some of the animals tested contained PCB levels above the 5 ppm FDA action limit. In September, the area north of a line drawn from Mishaum Point, Dartmouth to Rocky Point, Fairhaven was officially closed to the taking of lobster by the Massachusetts Department of Public Health. A smaller area was closed to the taking of finfish. However, fishing continued as there is no enforcement of the closure.

Information was collected on the sea herring fishery. Fishing locations and catch-effort data was obtained from boats landing in Sandwich. Length-frequency of fish was recorded during the



